

United States Patent [19]

Aguilera

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[54]	PASSIVE CPU COOLING AND LCD HEATING FOR A LAPTOP COMPUTER
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[52]	Int. Cl. ⁶
[58]	Field of Search

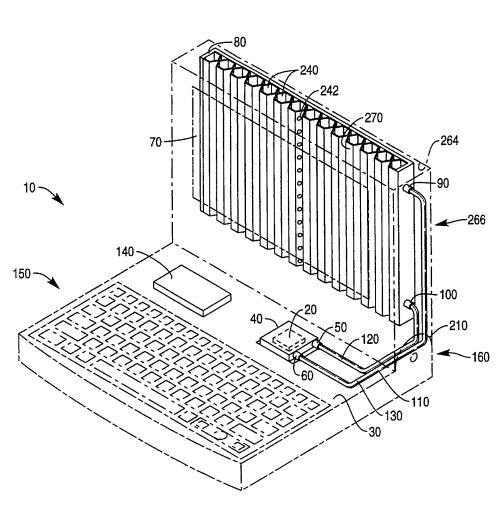
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ABSTRACT [57]

In a laptop computer, CPU-generated heat is thermally conducted passively to a radiator-like element disposed behind the LCD, which uses the heat to warm the LCD. The CPU is surrounded by a liquid-tight housing containing a biphase coolant. A first tube in fluid communication with an outlet port in the housing conveys heat-vaporized coolant to an input port on the radiator. The coolant flows through a plurality of columns formed in the radiator-like element, transferring heat and condensing in the process. The transferred heat is radiated to the LCD, which is desirably warmed in the process. The condensed coolant is conducted from an export port in the radiator-like element through a second tube to an input port in the housing. A pressure sensor may be included to provide a coolant pressure drop signal that can be used to shutdown the CPU in the event of a coolant leak.

20 Claims, 5 Drawing Sheets



[56]

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